

CLAIMS:

1. A pulley support double row ball bearing comprising:

an outer ring with an outer diameter of less than 65 mm and having a double row outer ring raceway on an inner circumferential surface;

an inner ring having a double row inner ring raceway on an outer circumferential surface;

balls with a diameter of less than 4 mm, provided as several balls so as to be free rolling between the outer ring raceways and the inner raceways;

a retainer which holds the balls so as to be free rolling; and

a seal ring, which exists between the inner circumferential surface of the outer ring and the outer circumferential surface of the inner ring, and seals off openings on both ends of an inner space accommodating the balls, and

a width related to the axial direction is less than 45% of the inner diameter of the inner ring, and by externally fitting the inner ring to a support member and internally fitting the outer ring to a pulley, the pulley is rotatably supported on the periphery of the support member, wherein

near both ends of the inner circumferential surface of the outer ring, on the axially outside ends of continuous portions that exists between each of the outer ring raceways and a large diameter portion provided on both ends of this inner circumferential surface for stoppingly engaging with a seal ring,

there is provided a chamfer having an axial length which is 30% more than the axial length of the continuous portion, and which tapers in a direction of increasing inner diameter as it approaches the large diameter portion.

2. A pulley support double row ball bearing provided with:

an outer ring with an outer diameter of less than 65 mm and having a double row outer ring raceway on an inner circumferential surface;

an inner ring having a double row inner ring raceway on an outer circumferential surface;

balls with a diameter of less than 4 mm, provided as several balls so as to be free rolling between the outer ring raceways and the inner raceways;

a retainer which holds the balls so as to be free rolling; and

a seal ring, which exists between the inner circumferential surface of the outer ring and the outer circumferential surface of the inner ring, and seals off openings on both ends of an inner space accommodating the balls, and

a width related to the axial direction is less than 45% of the internal diameter of the inner ring, and by externally fitting the inner ring to a support member and internally fitting the outer ring to a pulley, the pulley is rotatably supported on the periphery of the support member, wherein

with regard to the radial dimensions, each of the outer ring raceways is

made shallower than each of the inner ring raceways.

3. A pulley support double row ball bearing provided with:

an outer ring with an outer diameter of less than 65 mm and having a double row outer ring raceway on an inner circumferential surface;

an inner ring having a double row inner ring raceway on an outer circumferential surface;

balls with a diameter of less than 4 mm, provided as several balls so as to be free rolling between the outer ring raceways and the inner raceways;

a retainer which holds the balls so as to be free rolling; and

a seal ring, which exists between the inner circumferential surface of the outer ring and the outer circumferential surface of the inner ring, and seals off openings on both ends of an inner space accommodating the balls, and

a width related to the axial direction is less than 45% of the internal diameter of the inner ring, and by externally fitting the inner ring to a support member and internally fitting the outer ring to a pulley, the pulley is rotatably supported on the periphery of the support member, wherein

each of the retainers is designed such that inside surfaces of respective pockets are adjacent to and facing the rolling surface of each of the balls, and the radial positioning is determined by the balls, and a difference between a

pitch diameter of a series of the balls and an inner diameter of the retainer is greater than a difference between an outer diameter of the retainer and the pitch diameter.

4. A pulley support double row ball bearing provided with:

an outer ring with an outer diameter of less than 65 mm and having a double row outer ring raceway on an inner circumferential surface;

an inner ring having a double row inner ring raceway on an outer circumferential surface;

balls with a diameter of less than 4 mm, provided as several balls so as to be free rolling between the outer ring raceways and the inner raceways;

a retainer which holds the balls so as to be free rolling; and

a seal ring, which exists between the inner circumferential surface of the outer ring and the outer circumferential surface of the inner ring, and seals off openings on both ends of an inner space accommodating the balls, and

a width related to the axial direction is less than 45% of the internal diameter of the inner ring, and by externally fitting the inner ring to a support member and internally fitting the outer ring to a pulley, the pulley is rotatably supported on the periphery of the support member, wherein

each of the retainers is designed such that inside surfaces of respective

pockets are adjacent to and facing the rolling surface of each of the balls, and the radial positioning is determined by the balls, and a difference between an inner diameter of the outer ring and an outer diameter of the retainer is greater than a difference between an inner diameter of the retainer and an outer diameter of the inner ring.

5. A pulley support double row ball bearing provided with:

an outer ring with an outer diameter of less than 65 mm and having a double row outer ring raceway on an inner circumferential surface;

an inner ring having a double row inner ring raceway on an outer circumferential surface;

balls with a diameter of less than 4 mm, provided as several balls so as to be free rolling between the outer ring raceways and the inner raceways;

a retainer which holds the balls so as to be free rolling; and

a seal ring, which exists between the inner circumferential surface of the outer ring and the outer circumferential surface of the inner ring, and seals off openings on both ends of an inner space accommodating the balls, and

a width related to the axial direction is less than 45% of the internal diameter of the inner ring, and by externally fitting the inner ring to a support member and internally fitting the outer ring to a pulley, the pulley is rotatably

supported on the periphery of the support member, wherein

a back-to-back duplex type contact angle is given to each of the balls arranged in a double row, and an inner diameter of the outer ring on an axially outside portion, being an anti-loading side, of each of the outer ring raceways is greater than the largest diameter of each of the outer ring raceways.

6. A pulley support double row ball bearing provided with:

an outer ring with an outer diameter of less than 65 mm and having a double row outer ring raceway on an inner circumferential surface;

an inner ring having a double row inner ring raceway on an outer circumferential surface;

balls with a diameter of less than 4 mm, provided as several balls so as to be free rolling between the outer ring raceways and the inner raceways;

a retainer which holds the balls so as to be free rolling; and

a seal ring, which exists between the inner circumferential surface of the outer ring and the outer circumferential surface of the inner ring, and seals off openings on both ends of an inner space accommodating the balls, and

a width related to the axial direction is less than 45% of the internal diameter of the inner ring, and by externally fitting the inner ring to a support member and internally fitting the outer ring to a pulley, the pulley is rotatably

supported on the periphery of the support member, wherein

a face-to-face duplex type contact angle is given to each of the balls arranged in a double row, and an inner diameter of the outer ring on an axially inside portion, being an anti-loading side, of each of the outer ring raceways is greater than the largest diameter of each of the outer ring raceways.

7. A pulley support double row ball bearing according to any one of claim 1 through claim 6, wherein at least one member of a pulley to which the outer ring is internally fitted, and a support member to which the inner ring is externally fitted, is made from a material for which the coefficient of linear expansion is greater than that of the metal material constituting a raceway which is fitted to the member, and a thickness related to the radial direction of the raceway at a portion corresponding to a bottom part of a raceway groove formed in the raceway fitted to the member is over 50% of the diameter of the balls of the ball bearing.